

Amendments to the Specification

Replace the paragraph beginning at line 11 on page 1 with the following rewritten paragraph:

A -- Magnetic disk drives are used to store and retrieve data for digital electronic [[apparatuses]] apparatus such as computers. In Figures 1A and 1B, a magnetic disk data storage system 10 of the art is illustrated which includes a sealed enclosure 12 and a plurality of magnetic disks 14 each of which has an upper surface 16 and a lower surface 18. The disks are supported for rotation by a spindle 20 of a motor 22. --

Replace the three successive paragraphs beginning at line 1 on page 2 with the following three paragraphs:

-- The actuator arms 26 support a plurality of suspensions 32, each of which supports at its distal end a slider [[34]] 34a, 34b. Each suspension holds its corresponding slider [[34]] in close proximity to a surface of one of the disks 14 to facilitate reading and recording data to and from the disk 14.

A 2 The motor 22 and spindle 20 cause the disks 14 to rotate. As the disks 14 rotate, the air immediately adjacent the disks moves with the disks as a result of friction and the viscosity of the air. This moving air passes between each of the sliders [[34]] 34b, 34a and its adjacent disk surface 16, 18 forming an air bearing. This air bearing causes the head to fly a very small distance from the disk surface 16, 18.

With reference to FIG. 1C, the slider is generally in the form of a ceramic block having a leading edge [[36]] 36, a trailing edge [[38]] 38, first and second lateral sides 40, 42 opposite one another, and an air bearing surface generally referred to as 44. The air bearing surface includes first and second laterally opposed rails 46, 48. Each rail 46, 48 has an inward turning foot portion 50, 52 at its end closest to the leading edge 36 of the slider 34. The foot portions 50, 52 define [[there between]] therebetween a channel 54. A pad 56 is formed on the air bearing surface 44, located at the trailing edge 38 of the slider 34 centrally between the lateral sides 40, 42. --

Replace the three successive paragraphs running from line 3 on page 3 through line 17 on page 4 with the following three paragraphs:

-- With reference to FIGs. 1D and 1E, each of the sliders 34 has within it a read element 60 and a write element 62. As the disk surface 16 or 18 moves past the slider 34 the write element 62 generates a magnetic field leaving magnetic data on the passing disk 14. Such write elements are generally in the form of an electrical coil 64 passing through a magnetic yoke 66. As a current passes through the coil 64 it induces a magnetic field which in turn generates a magnetic flux in the yoke 66. A gap 68 in the yoke causes the magnetic flux in the yoke to generate a magnetic field which fringes out from the gap 68. Since the gap is purposely located adjacent the disk, this magnetic fringing field imparts [[a]] magnetic data onto the passing magnetic disk 14. The coil 64 is embedded within a dielectric material 70 which electrically isolates it from the yoke 66. An insulating layer 72 covers the entire write element 60.

With continued reference to FIGs. 1D and 1E, to read data from a disk 14 the read element 60 detects changes in surrounding magnetic fields caused by the disk 14 passing thereby. Several read elements may be used to read such data. A very effective read element currently in use is a GMR Spin Valve sensor [[70]] 74. Such sensors take advantage of the changing electrical resistance exhibited by some materials when a passing magnetic field affects the magnetic orientation of adjacent magnetic layers. At its most basic level, a GMR spin valve includes a free magnetic layer and a pinned magnetic layer separated by a non-magnetic layer such as copper. The pinned layer has magnetization which is pinned in a pre-selected direction. On the other hand, the free layer has a direction of magnetization which is perpendicular with the pinned layer, but is free to move under the influence of an external magnetic field such as that imparted by a passing magnetic recording medium. As the angle between the magnetic directions of the free and pinned layers changes, the electrical resistance through the sensor changes as well. By sensing this change in electrical resistance, the magnetic signal passing by the read element can be detected. The sensor [[70]] 74 is embedded within a dielectric layer 76, between a shield 78 and the yoke 66 of the write element 62.

With reference now to FIG. 1F, in order to take advantage of a greater amount of available disk surface area for data recording, manufacturers have used a side rail slider 80. Similar to the earlier described slider 34, the side rail slider 80 has a leading edge 82, a trailing edge 84 and first and second lateral sides 86, 88. The side rail slider also has first and second rails 90, 92. The side

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rail slider 80 differs from the previously described slider 34 in that the side rail slider 80 has a pair of pads 94, 96 which are located at opposite lateral sides 86, 88 of the slider 34 along its trailing edge 84. The read and write elements 60, 62 are located in one of the pads along a lateral side of the slider 34. This is advantageous in that it allows data to be recorded and read right up to the outer edge of the disk which would not be possible [[with]] if the read and write elements 60, 62 were located centrally on the slider. --

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Replace the paragraph beginning at line 16 on page 6 with the following rewritten paragraph:

-- Figure 5[[,]] is a diagram of a process for constructing a head of the present invention. --

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Replace the four successive paragraphs running from line 13 on page 7 through line 18 on page 8 with the following four rewritten paragraphs.

-- The leading edge of the slider 200 defines a proximal end, while the trailing edge defines the distal end. The first and second rails 206, 208 are both generally doglegged in shape, each rail having a proximal foot portion 224, 226 which turns toward the other rail. The foot portions 224, 226 define [[there between]] therebetween a channel 228 having a floor 230 and first and second laterally opposing [[sides]] side walls 232, 234.

With further reference to FIG. 2, the first and second rails 206, 208 define [[there between]] therebetween a cavity 236. The cavity 236 is bounded at its proximal end by the foot portions 224, 226 of the rails 206, 208, and is bounded at its lateral sides by the inner walls of the rails 206, 208. The cavity 236 has an open distal end.

The air bearing surface 202 of the slider 200 includes [[a]] an intermediate surface 238 having a height which is between that of the base surface 204 and the surface of the first and second rails 206, 208. The intermediate surface 238 extends from the leading edge 216 to the proximal edge of the of the foot portions 224, 226 of the rails 206, 208. The intermediate surface 238 also extends to the distal end of the channel 228, forming the floor 230 of the channel. The intermediate surface 238 terminates at the distal end of the channel 228 to form a shoulder 240 where the intermediate surface drops down to the base surface 204 at the proximal end of the cavity 236. In the preferred embodiment, the intermediate surface 238 extends along the outer

proximal edge of the second rail ~~[[222]]~~ 208 tapering toward the second lateral side 222 of the slider to terminate at a point midway along the length of the second rail 208.

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With reference still to FIG. 2, the pad 210 has a first level 242 having a surface at generally the same elevation as the intermediate surface 238. The first level steps up to a second level 244 which has a surface at generally the same height as the surface of the rails 206, 208. The first level 242 of the pad 210 is disposed proximal to the second level 244 of the pad 210. The second level of the pad extends generally to the trailing edge 218 of the slider 200. The read element 212 and write element 214 are embedded within the slider 218 at the pad 210 at the trailing edge 218 of the slider 200. The read and write elements 212 and 214 extend into the slider 200 in a direction perpendicular to the air bearing surface 202 with the ends of the read and write elements 212, 214 extending to the surface of the second level 244 of the slider. --

Replace the paragraph running from line 23 on page 9 to line 9 on page 10 with the following rewritten paragraph:

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-- As will be appreciated by those skilled in the art, moving the read and write sensors 212 and 214 to the edge of the slider increases the useful space on the disk 14 (FIG. 1) from which data can be read and written. Furthermore, it is desirable to maintain, as much as possible, a constant fly height at the location of the read and write elements. Prior art systems having read and write elements disposed near a side of the slider have maintained stable flight by including a pad at both corners of the trailing edge. The first pad in such a system contained the read and write elements while the other pad balanced the high pressure generated by the first pad. The X or roll axis of such a slider was therefore maintained near the center of the slider. Such sliders exhibit the undesirable property that the read and write ~~[[elements 212, 214]]~~ elements 212, 214 are disposed away from the X or roll axis. Therefore, as the slider rolls during flight the distance between the read and write elements and the disk varies. --